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## POLAR ICE.

AMONG the navigators and scientific men of former times, it was disputed whether salt water was capable of being frozen. Experience—in many cases a stern teacher—has set that question at rest, proving that within the polar circles the sea is, for hundreds of miles, covered with masses of ice, which form a sullen, unyielding barrier to the poles. Maury describes the agencies at work in these terrible solitudes in a famous passage: 'There icebergs are framed and glaciers launched; there the tides have their cradle, the whales their nursery; there the winds complete their circuits, and the currents of the sea their round in the wonderful system of oceanic circulation; there the aurora is lighted up, and the trembling needle brought to rest; and there too, in the mazes of that mystic circle, terrestrial forces of occult power and of vast influence upon the well-being of man are continually at play. Within the arctic circle are the pole of the winds and the poles of cold; the pole of the earth and of the magnet. It is a circle of mysteries; and the desire to enter it—to explore its untrodden wastes and secret chambers, and to study its physical aspects—has grown into a longing.'

Marine ice is whitish, opaque, and rough on the surface, and consists of thin flakes of a porous spongy texture. From the quantity of strong brine enclosed in its substance, it is very heavy and dense, and projects only one-fifth above water. When sea-water begins to freeze, it partially deposits its salt, which, thus set free, retards the process of congelation below. Old floes are almost fresh, but a thaw renders them brackish. The polar seas do not congeal until the temperature falls to 28½ degrees of Fahrenheit, which takes place in September in the north, and March in the south; though even in summer, a slight increase of cold is sufficient to form young ice several inches thick. The sun sets early in November, and the severity of the arctic winter begins in December, continuing to the end of January, during which time the thermometer

ranges to about 40 degrees below zero. A week or two of milder weather comes on; but the middle of February brings with it the sun, immediately followed by the most intense cold of the whole winter. After that, the sun's influence begins to be felt, and in July, the ice breaks up. During the three summer months, the sun never sets, but noon and midnight are equally illumined by brilliant sunshine. A few stars appear in September. The darkest part of winter is from the middle of December to the middle of January, when the aurora transforms the sky into a vault of fire, and *paraselenæ* appear, surrounding the moon with blazing crosses, circles, and mock-moons, scarcely surpassed by the wonderful deceptions of the solar rays. The intense cold of February is accompanied by considerable twilight; and in the latitude of Banks's Land, there is even at the end of January tolerable light from 9.30 A.M. to 2.30 P.M., so much so, that at noon *Arcturus* is the sole star unquenched by the increasing daylight. The only navigable time is from July to September within the northern, and January, February, and part of March within the southern circle. During the rest of the year, the arctic regions are impenetrably sealed by vast fields of ice, both 'floe' and 'pack,' covering every foot of water, from the shallowest inlet to the wide expanse of Baffin's Bay or Melville Sound.

Floes are often several miles in diameter, and fields stretch away out of sight from the mast-head; while the great pack of Baffin's Bay extends for hundreds of square miles, unbroken by a single crack shewing blue water. Bay or young ice forms most rapidly near land, where the water is shallow and soon cooled throughout its depth; hence the name. The small round discs called *pancake ice* result from the soft crystals formed by frost when it first grasps the surface of ruffled water, or, as some say, from snow falling into the sea without thawing; the motion of the waves in both cases driving the loose mass into these shapes. They next unite into a continuous sheet, increasing in thickness with increasing cold till it becomes floe, from two to seven feet thick in summer, and fifteen or even

twenty feet in winter. This is often broken up by the joint action of wind and tide; and when the huge fragments are piled into hummocks sometimes fifty feet high, and of the most fantastic shapes, whirled and jammed together by these unseen forces, and again firmly cemented by frost, the whole is called a pack. The edge of a heavy pack always consists of old hummocks of the largest size wedged together. In summer, these break up in small holes of water connected by narrow lanes, with occasional openings in the edge of the pack. A peculiar groaning, which arises from the pressure to which the floe is subjected, announces the approaching 'nip.' The ice 'buckles,' that is, rises in an arch, and crashes over, piling the fractured pieces along the line of disruption with a sharp shrieking sound. This is caused chiefly by the force of tides or of a groundswell. When the wind brings two floes into collision, the effect is similar at the moment of contact, except where one is very heavy, in which case it underruns the other. Woe to the unfortunate whaling-vessel that lies between two opposing floes when a nip is inevitable, giving her no time to saw a temporary dock in the ice! She is forced up and thrown on her beam-ends, or crushed to pieces; or worse, if she be deeply laden, the ice may rise up and overwhelm her altogether.\* Sometimes a nip comes almost noiselessly, with scarcely any groaning, and turns up great masses with 'quiet but appalling grandeur.' There is a strong swell, and the colour of the water changes on approaching a great body of ice. The clouds also assume a deceptive appearance of land. A comparative calm prevails throughout the arctic regions, in strong contrast to the antarctic seas. The wind is rarely above a force of five, though in some parts storms are frequent.

Scoresby gives thirteen feet as the average depth of a winter floe, but this varies greatly. In Kennedy Channel, Dr Hayes met with broken pieces four times that thickness. This is thawed to a depth of perhaps four feet by the sun, and the action of the waves also reduces it considerably. Narrow channels and bays are soon cleared, but the main body of the ice never dissolves. Through the one long summer day it floats, driven hither and thither at the caprice of wind or wave; and, whether encircling the land like a white girdle, or lying far out at sea, scarcely distinguishable on the horizon but for the spray flashing in the sunshine, as it beats on the windward edge of the ice, it remains changeful yet steadfast, unyielding till the winter frosts creep on, and its bright enemy sinks in death-like cold. Every winter, the great barrier puts forth two tongues of ice from Melville and Smith Sounds. They drift southward, and unite to form the great pack or 'middle ice' of Baffin's Bay, which goes rolling on through the wild dark night to its dissolution in the open ocean. It is in motion from December to May, and by July is floated out sufficiently to enable the whalers to cross the 'north water' from Melville Bay to Lancaster Sound. The old *Resolute* was drifted alone in the pack a distance of fifteen hundred miles without a scratch on her rusty sides; and the steamer *For*, after being beset in the north water, drifted during the whole winter

back to Cape Farewell, with the same icy landscape around her when she finally broke out as when she commenced her unwilling backward voyage. Once let a vessel get entangled in the pack, and she is fast for the season, if not indeed for the winter.

Ice-blink, or the light on the horizon reflected from snow or ice, varies in tint; over field-ice, it is a very pale, clear yellow; over pack-ice, pure white. The blink of young ice has a slightly grayish tint, and that indicating snow on land is a deep yellow. In the antarctic regions, the latter is paler than in the north. Besides these, a peculiar darkness on the horizon, called a water-sky, is a sure herald of open water in the direction to which it points. Frost-smoke is merely steam from the sea, produced by its contact with the colder air.

The levels called 'tidal terraces' are usually supposed to have been caused by geological changes in the gradual upheaval of the coast during long successive ages. Belcher's theory is that they are produced by bay-ice, under strong pressure, being forced up the beach, grazing its surface until the motive-power is arrested. This may happen several times, each successive sheet sliding over and beyond the last, and the whole freezing into one mass. Naturally, when it is afterwards broken off or thawed in summer, it leaves the impress of its bed on the gravelly slopes in a tidal terrace.

The interior of Greenland is occupied by vast glaciers, which encroach on the coast, filling the deep dark fiords with frozen snow. As summer advances, those portions of the glacier that project into the sea are undermined by the waves, and fall with tremendous noise, rocking in the foaming water till they gain equilibrium, when, perfect icebergs, they float here and there, impelled by winds and currents. Many are borne by the polar current southward. They meet the warm waters of the Gulf-stream in latitude 50 degrees, where they melt, and deposit the loads of earth and stones borrowed from the Greenland soil. According to Maury, this has probably, in course of time, formed the Grand Bank of Newfoundland. They are in incredible numbers. As many as five hundred have been counted in sight together, ranging from fifty to three hundred feet in height, and of all sizes up to a mile in extent. Their appearance is very beautiful and no less extraordinary. Gothic churches, Egyptian temples, aerial palaces with pillars and arched windows festooned with crystal draperies, are only some of the inconceivable varieties of form displayed, while they gleam under the summer sun like mountains of burnished silver, with pinnacles and cliffs of clear sapphire or the palest green, from which rush cataracts of limpid water mingled with fragments of ice. These various hues arise from several causes. Bergs are originally composed of fresh-water ice of different ages, but that formed from salt water frequently overlays it in parts. A great deal of snow lies on their summits, and forms large ponds of fresh water, when dissolved by the heat of the sun. Finally, the solar rays touch the bergs with colours changing with the position of the spectator. Only one-eighth of their total thickness is seen above water. Frequently bergs capsize in consequence of the sea undermining their base. An ominous rolling motion gives notice of this event; it continues for some time, and at last the berg heels over and disappears with a terrific plunge, sending

\* 'Wherever the wind can act on water, and the tide-ripple obtain play, it will break up the heaviest floe.'—*Belcher*.

up columns of spray. It reappears bottom upwards, balances itself, and floats quietly on with a changed face.

All the antarctic land yet discovered consists of gigantic cliffs without a single opening, three thousand feet high in some places, descending in others to one hundred feet. The whole is faced with ice of enormous thickness, and covered with snow, so that at a glance the eye can scarcely imagine it to be land at all, but for spots shewing the dark stone where the cliff is too perpendicular to admit of even ice maintaining its hold. Nothing is so tenacious as the cold of the antarctic regions. In February, the warmest summer month of 1841, the thermometer never rose above 14 degrees at noon near the continent. It is rarely above 30 degrees in the sun at mid-day during summer, and falls in winter more than 50 degrees below zero. The sun stays a week longer north of the equator than it does south, making the winter and night of the antarctic regions longer. South Georgia, in a latitude corresponding with that of Yorkshire in the northern hemisphere, is always covered with frozen snow, and produces scarcely anything but mosses and lichens. The immense preponderance of water south of latitude 50 degrees, allows the fierce westerly winds to blow round and round the world, a perpetual cyclone, keeping the sea in constant agitation. Hence it is but natural that pack-ice should prevail. A single level floe-piece is rarely more than a quarter of a mile in circumference, so broken and pressed together is the ice by the fury of the waves, which beat heavily against the pack-edge. To leeward it is smoother, and a calm opens the pack in all directions. Exploring expeditions have had no need to winter here. They cruised about during the summer months, January and February, and returned in March through a yet open sea; therefore little is known of these regions in winter. Even in summer the cold is so intense that everything wetted freezes instantly; and the progress of vessels would be seriously impeded by the accumulation of ice on their bows and lower rigging, if it were not chopped off every day with axes. On one occasion, when the crew of the *Erebus*, Sir James Ross's ship, were performing this duty, they found a fish six inches long firmly embedded in the ice. It must have been dashed against the side and instantaneously frozen in. The temperature being scarcely ever above the freezing-point, ice seldom melts, and the constant damp and precipitation in one form or another increase it. Bergs have little variety of form, unlike those of the far north. A freshly formed antarctic iceberg is stratified, flat-topped, and perfectly wall-sided, varying from one hundred to six hundred feet in height, and reaching sometimes an extent of six square miles. In different stages of decay, they take curious shapes, which relieve the monotony of the usual enormous square blocks of ice. Large fragments constantly fall from them, forming a stream of heavy pieces to leeward. Wilkes believes that their formation in strata may be owing to the berg having been originally a piece of drift-ice, upon which successive layers of snow, rain, and fog have frozen. The sea being nearly always of the same temperature, they do not melt, but float for a long time, perpetually added to by the moisture. If, as is probably the case, they fall from the cliffs, their form may be accounted for by the perpendicular, angular character of that tremendous barrier. A difference of temperature

between sea and air occasions cracks in the ice. A sudden change in the arctic regions during winter causes great fissures many miles in extent, diverging to every point of the compass, and attended by loud explosions, similar to those unexplained noises called by seamen 'bolts cracking.' These last must be produced by submarine movements of the ice, for they take place without the smallest apparent motion; and, as Belcher justly says, a vessel would drop to pieces before the winter was half over if her bolts snapped at the rate at which these sounds are heard. In winter, the air of the antarctic regions is probably 40 or 50 degrees below zero, and the sea 28 degrees above—a difference which causes large masses to break off the cliffs of ice, to be drifted by the south-westerly winds to warmer latitudes, there to melt.

Brash or powdered ice, of a brownish yellow colour, was found near land by exploring parties. Melted and poured through blotting-paper, it left a thin sediment, from which, when dried, a very fine powder was obtained. Analysis proved this to be minute animalcula, probably the colouring matter in all stained ice and snow, not excepting the much discussed red snow seen by Ross and others on the Crimson Cliffs of Beverley.

Sometimes the tops of bergs are crowned with a cloud of white mist, occasionally so dense as to envelop it altogether. There the process of evaporation is busily going on. Every particle of air above those seas is heavily charged with moisture.

From this it will appear that the two polar circles differ greatly in physical conditions. The antarctic has a marine climate, that is to say, it is equable. Though wet and stormy, it is not subject to extremes of temperature, and it is believed that the south pole must be warmer than the north in winter. Arctic sunshine raises the thermometer to 66 degrees or 70 degrees, and hung in the shade immediately after, the mercury falls to the freezing-point. The arctic climate is continental—dry, calm, and variable. The thermometer has a range of about 120 degrees; and while the round of the seasons brings but little change in the frightful antarctic wastes, nothing can surpass the beauty of the arctic summer—'an endless blaze of light, the air and sea and earth teeming with life,' plains glowing with richly tinted flowers, and strange, glittering forms sailing past 'in stately and solemn procession.' Its currents are strong, and bear large numbers of bergs to meet the warm Gulf-water, and, as it is natural to suppose, bergs are found to be most numerous where the drift is strongest. The antarctic seas are in direct opposition to this. Not only are its currents sluggish and feeble, but the most powerful of them, Humboldt's Current, carries few bergs along the Chilean coast, while the main ice-drift is towards the Falklands on one side, and the Cape of Good Hope on the other, where there is scarcely any motion of the water. This is a fact which no navigators are able to explain, except perhaps on the supposition that there may be strong submarine currents at a great depth below the surface. Bergs have been observed in Baffin's Bay drifting rapidly to the north, when there was a powerful surface-current running against them, shewing that in consequence of their weight and immense draught of water (in some instances more than a thousand feet), they must be influenced by some 'resistless undertow' yet stronger.

Unfortunately, all our knowledge of the poles of the earth is confined to scientific guessing. The north magnetic pole in Boothia is known; so are the poles of winter cold, one of which lies near Yakutsk in Siberia, and the other not far from Wellington Channel. The poles of summer cold are not so well established. From various testimony, it is all but certain that the true north pole is warmer than is currently believed. Dr Kane discovered beyond Smith Sound a perfectly open sea with tides ebbing and flowing, and shores abounding in animals and birds. Captain Penny sailed upon a similar open sea. The ice-field which baffled Parry's heroic effort to reach the north pole in 1827 was travelling southward, borne by a current like that of Baffin's Bay, and must have left open water in the latitude from which it started, at most only five degrees from the pole. No bergs are met with in the seas of Northumberland Sound, but immense hummocks, which might sometimes deceive a careless eye. Ice is frequently piled on the western side of Queen's Channel, apparently from tidal motion. After a nip, the piled fragments grind each other to powder, and involve all in a smooth coating of brash-ice resembling a small berg. This adds to the evidence regarding tides in the polar sea, and, as some think, proves the non-existence of land there; for, as it is a maxim that wherever icebergs are found, land to produce glaciers cannot be far off, it is argued that the reverse holds good. Others believe, on the same principle, that as bergs are met with in Kennedy Channel as far north as it has been traced, Greenland must extend to an infinite distance, and might possibly afford tolerable sledging the whole way to the pole. It may be that the tidal wave comes in from the Atlantic round the northern end of Greenland, it may be that it is generated at the pole itself; that these questions are no nearer decision than they were ten years ago, is to be regretted. Another material point of evidence remains. Immense numbers of birds, including water-fowl, migrate northward in winter from the heart of the frozen seas. Reason asks why this is, if they do not expect, with their unerring instinct, to find a warmer climate and an open sea. Long before the North-west Passage was discovered, the whalers asserted that it must exist, because whales, that cannot pass the tropics, had been met with in Behring's Strait, wounded by harpoons that were stamped with the private mark of Atlantic whaling-vessels. Experiment has proved the correctness of their assertion; that problem is solved, and the poles may one day yield up to us their deepest secrets.

### A PERFECT TREASURE.

#### CHAPTER IX.—MRS BLUNT SEES HALF THROUGH THE MILLSTONE.

It was customary with Rosa Glendell, as I came in time to learn, to say as wise and true things in jest as most people can compass in earnest. She had indeed described my dear uncle's characteristic when she called him 'impracticable' as a patient. She was also a girl of her word. She had undertaken to nurse him without his knowing it, and she went through with that. Of course, Mr Glendell took an early opportunity of bringing her with him to 'the Point,' and she made conquest of the ex-maharajah on the spot. This result astonished

nobody but herself; but it was the most complete success imaginable. My uncle was actually induced, because her lovely hands had brewed it, to take a cup of tea—a beverage I had never seen him touch; and he pronounced it admirable; nay, he was even heard to murmur something about the sugar being unnecessary, during the delivery of which sentence he blushed profusely. We never had so merry an evening in our little home before. The host exerted himself to amuse his youthful guest in the most unwonted manner; everything he possessed that was rare and curious was taken from its repository, and received its appropriate history. The cause of this was, in the first place, the admiration which my uncle entertained of Rosa's character: the efforts she had made to support herself; her self-denial and self-exile—all which he had heard from her father's lips. But it was impossible for him to resist her personal attraction. When she left us that night, it seemed that the house had lost something much more than a beautiful ornament. 'The presence of that excellent girl, Marmy, positively does one good,' said my uncle between the puffs of his cheroot.

So Rosa came to our house to teach me French, instead of my going to Mr Glendell's. By the end of the week, I shewed her the portrait of the Begum, and assured her that she had effectually erased the memory of that interesting female in the ex-maharajah's heart.

The surgeon expressed a hope that his daughter would bear herself meekly, if chosen to succeed so eminent a personage, and not be supercilious to her nephew by marriage.

As to my uncle, he openly expressed his regret that a man might not marry his grand-daughter. He submitted to this charming creature's dictation without resistance, and from her hand would take anything that was good for him. Always kindly and good-humoured, he was now become quite jocose and sprightly. Mr Glendell seemed to grow younger daily from the time his daughter returned home. As for me, I dwelt in the seventh heaven, only descending from it to write my novel, which I wished, above all things, to make worthy of the approbation I knew would be bestowed upon it by this new critic, so much easier to please than the literary veteran at Seaview Cottage.

Those were happy, happy days.

The only person in our household, and, indeed, in the village itself, who did not seem to be touched by the wand of this good fairy, and altered for the better, was Sangaree Tannajee. He ought to have been at least grateful to this young girl, who took all trouble off his hands, as respected his sick master's needs, and smiled even on himself—for she was like the sun, that smiles upon the unjust as well as on the just—but he only scowled upon her as he did upon everybody else. He was jealous of her influence with my uncle, notwithstanding that he himself never strove to gain any: and doubtless he disliked her for liking me. Insolent as he was, however, he did not venture openly to shew this. He was not deficient in cunning; and perhaps he felt that any impertinence to Miss Glendell would be the one thing that my uncle would not pass over.

Rosa and I were very diligent as teacher and pupil, and again as pupil and teacher. I hardly know which I enjoyed most, the learning or the teaching; the listening to her soft clear tones making music of a strange tongue, or the reciting

Chambers's  
Jan. 30, 1888.  
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to her the melodies of Keats, and Shelley, and Coleridge—my favourite poets, and whom I wished her to love as I did.

When she was not by my side, I worked hard, but not hurriedly, at my novel. It was not worth much, of course, but it was at least twice as good, thanks to Mrs Blunt's advice, as my last crude attempt at fiction.

At the end of six months, I took what I had written to Seaview Cottage; and, in a few days, repaired thither again for judgment.

I was by no means so nervous this time as when I was edited before. I was conscious of improvement; and, besides, there was nothing to be decided upon on this occasion as regarded my future calling.

'There is one thing, Marmy, that has interested me greatly in your novel,' was the old lady's first remark.

'My dear Mrs Blunt,' said I, reddening to the ear-tips, 'I am delighted to hear it. What is it?'

'Well, Marmy, I take a lively interest in young people's "goings-on," as we say at Sandiford; and your novel has convinced me that you are in love.'

I blushed from head to heel.

'It's perfectly charming,' continued the old lady, 'and just as it should be—your united ages being thirty-five, and neither of you having a shilling to call your own.'

'I could not help it, madam,' pleaded I, with simplicity.

'Of course not. You would have been a heartless young wretch, only fit to make money, if you had failed to fall in love with Rosa Glendell. But still, you have not begun to think of marriage, have you?'

Notwithstanding her good-natured banter, I saw there was something serious in my kind critic's mind.

'No, indeed, madam: it would be very foolish to do so, for the reasons that you have named. I will not attempt to hide from you—although I did not know that I had revealed it in my story—that I do love Rosa with all my heart. I would die to save her little finger from hurt; I worship the very—'

'Yes, yes; that's all *here*, my dear,' said the old lady, pointing to the tell-tale pages. 'But have you told her so?'

'We have promised never, never to marry anybody except each other,' murmured I bashfully.

'And your uncle and her father, do they know of this eternal compact?'

'No, madam.'

'My poor boy,' said the old lady tenderly, laying her still plump hand upon my shoulder, 'you are dreaming, you two—you are not living in this world at all. I have lived there more than seventy years, and know how things really turn out. Rosa Glendell, who is a most charming girl, and has had a first-rate education in Paris, will presently marry a most respectable banker, a widower of about fifty-six.'

'What banker, madam?' exclaimed I indignantly. 'I am sure that if Mr Glendell has any such intention of disposing of his daughter's hand, she will never obey him.'

'You wish her to wait for you, then, Marmy—to wait, and wait, until, perhaps, her beautiful black hair turns gray, and she is no longer worth waiting for?'

'Madam,' cried I, 'I will not listen to such

words. Why do you insult me thus? I have won her love: I hope to prove myself worthy of it. I will work—God help me—like ten men, to earn a living for us both; and she is not a mere child of fashion, to whom every luxury is a necessary; she is a brave good girl—the bravest, best in England.—And please, madam, I will take my manuscript away, and not trouble you.' I never was so angry with any one in my life, not even with Sambo, and I am afraid I made a snatch at the parcel.

'Nay, sir,' said the old lady, holding up a reproving finger; 'you should not treat me so indeed. If I have the misfortune to be obliged to write for my living, I am a gentlewoman still.'

'I had not forgotten that indeed,' said I, humbled to the very dust, 'but only that I was myself a gentleman. Forget it, and forgive me, my dear madam. I am behaving like a brute, but indeed I scarcely know what I do. To hear that my sweet Rosa is to marry a banker, who is a widower of fifty-six—it makes me mad to think of it!'

'My good Marmy,' said the old lady soothingly, 'there is no particular banker in the case, I do assure you; I was merely casting Rosa's horoscope. From my experience of life, I judged that such a thing was likely to happen—that's all. Everything does turn out so exactly the reverse of what Youth pictures to itself. You must not be angry with me for reasoning from analogy, instead of being transported by your passion. I am not (as I said) at all surprised at your falling in love with Rosa, nor, I may add, you very nice boy (only you are not so good-tempered as I thought you were), at her reciprocating your attachment. But I don't like these serious promises of marriage between young folks who are poor; a long engagement of this sort generally ends in the self-sacrifice of the girl. In this case, here is a penniless lad, upon the threshold of the most uncertain profession in the world, exacting a promise—well, at all events, interchanging promises of eternal fidelity with one whose chief attraction, beauty, will fade in course of time—whose value in the matrimonial market, to speak the bare truth, will be depreciated with every year. I say you have no right to call upon her to nullify her own natural advantages, to destroy her chance in life for such a far-off contingency as you can offer. In short, Marmy, you are acting very selfishly in this matter, although I am sure you were unaware of it. You see what I mean now, don't you?'

'Indeed, I do, madam,' sighed I; 'and my duty is plain enough. I will release Rosa at once from her engagement. I am very much obliged to you for pointing out what ought to be done, Mrs Blunt; and you have broken my heart in doing it.'

How strange it seems, looking back on that scene now, through the many intervening years, that I should have been obliged to hide my face in my hands, lest that old woman should see my tears; but I did cry like a child. I had such confidence, you see, in my mentor's sagacity and wisdom, that I felt things must all turn out as she foretold, and that I and Rosa were never to be man and wife.

And ah! how I loved that girl!

Then, when I looked up at last with as cheerful a face as I could compass, I saw Mrs Eleanor Blunt was crying also. 'Don't cry, Marmy,' said she; 'that's very foolish: it is time for tears when everything else fails.'

'Everything has failed, or will fail,' murmured I gloomily. 'You have told me so yourself.'

'No, Marmy; I have not said that. You may release Rosa from her promise, and yet marry her, if things turn out well! You have two strings to your bow, yet, remember. In the first place, there is this book of yours—a most creditable performance for so very young an author. You have improved in your style, my dear, immensely.'

I shook my head: my case was past receiving comfort from 'improvement of style.'

'Now, if this novel has even a very moderate success, Marmy,' continued the old lady cheerfully, 'it may place you at once in a position to earn your own living. It will then become only a question of time for you to earn enough for two. Supposing it to be finished, and to extend over three volumes of print, then the question will be, how to get it brought out. Do you think the ex-maharajah could spare a hundred pounds or so, to get it published on your own account?'

'I am quite sure he could not, Mrs Blunt: we are growing poor up at "the Point" yonder; I can see that, although my uncle would conceal the fact. I would not ask him for a penny.'

'First books are sometimes published by subscription,' remarked the old lady thoughtfully. 'Now, how would that be?'

'Well, madam, my uncle would subscribe; and perhaps Mr Glendell; and then, since you are so kind, there would be a chance of one more. Besides those,' added I bitterly, 'I don't know of anybody else that would be.'—

'Fool enough,' ejaculated Mrs Blunt, completing my unfinished sentence. 'An edition of three! Her plump shoulders began to 'wobble,' and her eyes to twinkle with suppressed mirth.

For my part, I was intensely grave. 'I should not like publishing by subscription,' said I, 'in any case. Nothing but rubbish comes out in that way.'

'I won't say that, my dear, because my own first book was published by subscription,' observed the old lady. 'But you are quite right in the main. I have found cause to repent of it myself. Everybody who put down his guinea on that occasion, of course made me his debtor, and some of them have taken out the obligation since in patronage of a most unpleasant sort. There is a master-butcher who sometimes reminds me to this day that but for his one-pound-one, laid down half a century ago, nobody would ever have heard of Eleanor Blunt. That is what one may call exacting compound interest, which the law holds to be usurious, even when one raises money on one's expectations. Drat the man!'

The picture of this master-butcher (perhaps in blue) introducing Mrs Blunt into the Temple of Fame upset even my gravity.

'There are lots more,' continued she comically, 'of the same sort, only not quite so bad. Most of my original patrons are gone where there is nobody (I hope) to patronise; but some of their offspring or executors have not given up their lien upon my reputation yet. A few of those are, moreover, in such bad circumstances, that I have paid all the money twice over in hard cash. Yes, you are certainly right, Marmy, not to bring out your novel by subscription.'

'But how is it to be brought out, Mrs Blunt?'

'Well, it must take its chance in "the Row," Marmy.'

I thought she meant in 'the battle of the books,' in the *mêlée* of novels, all struggling for acceptance with the public, so I said: 'Of course it must; but how is it to be got there?'

'You foolish boy, I mean it must go to the booksellers'—must find a publisher for itself. Fortunately for you, my own mishap with those gentry—five of whom missed a fortune by rejecting me—has made the road to publication smoother than it was. Sooner or later, this manuscript is sure to be in print, Marmy; I will promise you that; though, in my opinion, the later it happens the better.'

This was but cold comfort, after all the depressing things with which Mrs Blunt had treated me during this interview; and I did not feel so grateful for it as perhaps I ought to have done.

'You said there was another string to my bow, madam—may I ask to what you were referring?'

'Well, that is a subject, Marmy,' answered she hesitatingly, 'upon which you have shewn some unwillingness to enter. But it is my earnest hope that your trump-card may turn out to be something apart from literature altogether. I have been thinking a good deal of that conversation we had together, six months ago, concerning—I won't say the secret between your uncle and his servant, since you wish to respect it, but concerning those future expectations of which Mr Braydon hinted. It is now plain to me from his expression: "I may be rich, and you almost certainly will be," that everything hinges upon the question of survivorship. If somebody or other dies before your uncle, the ex-maharajah will come into the property; and if your uncle dies, and you survive this said person, you will reap the same benefit. Mr Braydon being so much your senior, has, of course, a less prospect of inheritance than yourself, which fully accounts for his observation. Again, by the way in which he speaks of that prospect—for he *may* be a rich man, he says—it seems to me that he has about an equal chance of survivorship with this unknown person.'

'I think you are right,' cried I suddenly. 'I remember now to have seen my uncle more than once poring over a little book all composed of figures, and which I think was called the *Tables of Annuity*; but, to my knowledge, he has not done so for these many months.'

'Just so, my dear; that is because he feels himself far from well, poor fellow. His chance is no more as it used to be, a matter of simple calculation.—Now, how old is this Sangaree Tannajee? His looks are not much of a guide; but allowing for the effects of opium and a bad temper, I should judge him to be about his master's age.'

'I have heard my uncle say that Tannajee is by two years his senior.'

'Just what I expected, Marmy,' chuckled the old lady triumphantly. 'The master, then, until within these six months, had a slight advantage over the man. You may depend upon it that somehow or other—else why did your uncle say, when he saved his life, that he had resisted a great temptation?—that unpleasant Hindu, valueless as he appears to himself and to everybody else, stands between you and a great fortune.'

'Then what is it you recommend me to do, madam? To put him to death?'

'No, Marmy; because, although very nice, that would be dangerous and wrong. I advise you, for the present to stick to literature. But have your

eyes wide open—not to spy upon your uncle—I am the last person to propose such a thing as that, I hope—but to keep a very sharp look-out on Sangaree Tannajee.

'But what can he, personally at least, have to do with wealth of any sort, my dear madam?'

'I don't know, my dear; I only know your uncle took very great pains indeed to prevent his running away from you; and it's my belief that your hope of winning Rosa Glendell lies not so much in the success of this novel, as in retaining that Hindu vagabond's services for life.'

CHAPTER X.—I BRING THE HINDU TO REASON.

As the summer advanced, my uncle seemed to improve in health, and thereby supplied the one thing that was lacking to the happiness of our little household, in which—since they were so often with us—I include Mr Glendell and Rosa. But his spirits did not rise proportionably; they were very variable—almost always good when our pleasant neighbours were with us, but flagging, although he strove his best to keep them up, when we were alone. In the solitude of his own room, I had good reason to fear that they broke down altogether. His complaint still tormented him at night, for I often heard his hard dry cough for a whole hour together; and sometimes (though seldom now) he would get up and sit in a chair, for greater ease of breathing. From this, since I call him 'better,' it may be judged how very ill he had been; but the doctor expressed himself of good hope that his patient had 'turned the corner,' and would be tolerably strong before the ensuing winter. It would have been desirable for my uncle to have sought during that season a home less exposed to wind and storms than Hershell Point; but we all knew that it was useless to attempt to persuade him to do so. Like most men at an advanced age who have no domestic ties, which make a home wherever we carry them, he clung tenaciously to his own place.

Rosa, as before, could do anything with him short of getting him away; but he was as disinclined to be ministered to by any one else as ever. Often and often I have got up, hearing him in pain and trouble, and gone no further than the door of his room, where I have waited for an hour without going in, so well I knew that such an evidence of solicitude upon his account would distress him. But upon one occasion about this time, I experienced a novel cause of alarm. I had not heard my uncle cough at all that night, which I ascribed to my having slept more heavily than usual after a long day's walk; but I was awakened by hearing him move about in the study. The moon was shining at intervals through clouds, and I saw by my watch that it was about two o'clock in the morning. The house, of course, was profoundly still, or the noise of his slipped, or, as it seemed, naked feet could not have reached my ears. It would not have aroused me of itself, but a chair, or something he had probably stumbled over in the dark, had fallen.

I had never known him go into that room, which lay on the other side of mine from his own, at night before. There was some brandy there, of which perhaps he was in search; but if so, he must be much more unwell than usual. I slipped out of bed, and softly approached the study-door, which stood ajar. The name of this apartment,

as has been hinted, was a misnomer, for it did not boast of half-a-dozen books, and even the desk had very rarely any ink in it. There was a cupboard, in which were kept the brandy and my uncle's cheroots; and the turning-lathe and a few chairs were all the furniture. It was not even entirely carpeted, the spaces next the wall being quite bare. If they had not been so, I should not have heard the footsteps at all. I could now hear nothing, and the moon was hid, so that I could see nothing, as I watched and waited in the dark passage. Presently, however, I heard a click, which I recognised at once; the desk made that noise whenever it was opened, which was often enough, for my uncle kept all his housekeeping money there, and, characteristically enough, not under lock and key. There was the sealed packet there also, but nothing else. What could my uncle possibly want at such an hour out of his desk? The idea of a burglar never entered into my mind; such a being at Hershell Point was more rare than the dinornis: he was only not extinct because he had never existed. I heard the muffled chink of money, as if it was being counted coin by coin, and I noticed there were fewer than usual kept in the desk. A fidgety man, who fancied he had made some mistake in his domestic calculations, might perhaps have risen even in the night to assure himself respecting them; but my uncle was not fidgety. There was now another noise, which I had only once heard before; the secret spring had been touched, and the drawer containing the packet rattled out. At this moment, the clouds cleared away from the moon, and I saw a figure standing against the window with something in his hand. I have no recollection of doing so, but perhaps I gave an involuntary start. In an instant the figure turned, and I fled swiftly and noiselessly to my own chamber, though not so fast but that ere I entered it my ear caught once more the snap of the spring and the click of the desk. Directly afterwards a door was softly shut, and I heard my uncle's short dry cough on the other side of my room.

I would not have had him find me thus spying on his actions for ten times the gold in his desk, and I lay for a minute or two with beating heart, and scarcely venturing to breathe. But presently I began to consider, was it possible for such an invalid to have left the study and reached his chamber within that short space? The partition between our rooms was thin, and yet I had not heard the bedstead creak, as it was wont to do when it received the weight of the still stalwart ex-maharajah. Perhaps it was not my uncle at all who had visited the study. Who then could it have been? Who else had any right to count the money in the desk? or, supposing that had been done with some dishonest motive, who could possibly have any concern with the packet except one person, Sangaree Tannajee? I slept no more that night, but listened for every sound. If the Hindu's door had opened again, he would have found me armed—for my uncle had recently given me a pair of ancient pistols, beautifully inlaid, with which I practised shooting daily—and resolute to prevent his leaving the house. But all was still. What strengthened my suspicion that he might have premeditated some abominable *coup*, such as robbery and flight, was the fact that he had kept himself sober the preceding evening.

At breakfast, in answer to my inquiry, my

uncle informed me that he had passed a particularly quiet night, his cough having scarcely harassed him at all.

'Then you did not rise and go into the study for brandy?' said I as carelessly as I could. 'I certainly thought I heard you, and was afraid you were unwell.'

'Certainly not, Marmy. You are too anxious about me,' said he, with a little annoyance in his manner. 'I felt greatly better last night; and so far from running about the house, I scarcely even turned on my pillow. You must have been dreaming.'

My uncle was incapable of dissimulation, far less of a lie. I knew therefore at once whose figure it was that I had seen standing at the study-window; the only question was, should I reveal what I had seen? I decided to consult Mr Glendell upon this point, and I did so. The surgeon was aware of all that I knew myself respecting the mysterious connection of the Hindu with my uncle's fortunes, but he was not so curious about it as Mrs Eleanor Blunt was. Doctors, generally speaking, know too much of the secrets of their fellow-creatures to be greatly interested in such matters; and they are honourably discreet about what they know. With the exception of his jocose allusion to the skeleton in our household, he had never pressed me upon the matter, and for that very reason I had been the more induced, when I came to know him intimately, to repose in him my whole confidence. He had not been communicative of his ideas upon the subject; but when I told him what Mrs Blunt had said regarding it, he had nodded acquiescence in her views, and remarked drily that 'that old lady ought to have been a Bobby'—by which I understood him to mean a detective policeman.

He congratulated me on my good sense in having concealed what I had witnessed on the night in question from my uncle.

'Half his disease, my dear Marmy,' said he, 'is attributable to worry, anxiety of mind, and that's why Rosa and I make a home of your house: the more he is won from the solitude of his own thoughts, the better; bad news, in particular, should be studiously kept from him; and what you now tell me is *very* bad news. It is clear to me, that if there had been more shots in the locker, more money in the till, that whity-brown scoundrel would have bolted with it last night. What he wanted with the packet, I can't tell. Perhaps, having decided not to decamp, he only wished to assure himself that it was there. That he knows it contains something of importance, I have not the slightest doubt; but to steal it while his master lives can do him no good, since your uncle would, I conclude, simply have to rewrite the thing. Well, you must let this fellow know that you have your eye upon him—that you are not deceived in his character, although his master may be—in short, you must make him afraid of you, and that will not be difficult, for he is not, I should fancy, remarkable for personal courage.'

'He is the most cowardly cur,' said I contemptuously. 'How he could ever have cut his way through the Begum's troopers in that brilliant manner he used to describe to me when I was a child, I cannot imagine.'

'Your uncle was behind him with a loaded pistol, my good lad—one of the most powerful incentives to bravery it is possible to conceive. He

had got all the ex-maharajah's money and jewels about him, and was well aware that he would not be permitted to indulge in pusillanimity—it would have been too expensive a luxury just then.'

'Very well,' said I grimly, 'I will endeavour to convince him that to run away from Hershell Point with our housekeeping money would be a dear-bought amusement also. I will shew this villain that since our last little affair together, "Master Marmy," as he still has the impudence to call me, has grown to be a man.'

The opportunity I wished for of coming to an understanding with the Hindu did not occur for many weeks, during which he gave me constant occasion for desiring it. Twice, under the influence of bhang, he was most impertinent in his manner towards Miss Glendell; and nothing but her own earnest entreaties, and consideration for my uncle's health, which any mental agitation would be sure to injure, prevented my taking vengeance on his fat carcass. Within the last few months I had grown surprisingly both in length and strength, and felt myself no longer an antagonist such as that hulking scoundrel could afford to despise. But it was not a mere thrashing that could effect any permanent improvement in him, although, without doubt, it would do him good.

At last my chance arrived. My uncle announced his intention, one morning, of accompanying Mr Glendell in his gig to Daisyport, where the surgeon had an appointment; so that, in case of any explosion of Tannajee's wrath taking place (in consequence of what I proposed), the smoke would have time to evaporate, as it were, before his master's return, who might therefore be spared all knowledge of the matter.

It was very seldom that my uncle now left the house, except for an hour or two; and no sooner had he departed on this occasion, than, as I fully anticipated, Tannajee proceeded to get comfortably fuddled upon such liquors as he had by him in his own room. I did not molest him in that apartment, first, because it lay near the kitchen, and I was unwilling that Martha or Nancy should be listeners to our altercation; and secondly, because it was important that what I had to say should be said in the study, whither I well knew he would presently repair, to enjoy his master's cheroots. Accordingly, as soon as the smoke thereof informed me of his being there, I slipped into my own room for an article which I placed into my coat-pocket, and then presented myself at the study-door. The Hindu was seated cross-legged on the carpet as usual, a bundle of cheroots on one side of him, and the brandy-bottle on the other; it was a liquor he did not get hold of every day, though he liked it best of all, even better than opium; and he looked perfectly well satisfied with his position. Not a trace of embarrassment appeared in his features at being thus discovered in this act of petty larceny; but they were darkened with a scowl at the intrusion of so unwelcome a visitor.

'You need not rise, Tannajee,' said I, although, indeed, he had not moved a limb. 'I must have a few minutes' conversation with you, and we might as well both be comfortable after our several fashions;' and I took a chair immediately opposite to him.

He did not utter a word; but I knew, by the puffing of his cheroot, that my manner caused him some excitement, if not alarm.

'We are not very good friends, you and I, Sambo' (I could not resist that word, when I saw the gleam of hate lit up his fishy eyes); 'but it is not about that I am come to talk to you: it is about my uncle Theo, and your conduct towards him.'

By no means the least provoking of the Hindu's characteristics was his pretence, whenever it suited him, of not being able to understand the English language, with which he was in reality well acquainted, and he affected this ignorance now.

'The Maharajah's out, Master Marmy,' said he—'gone to Daisiyort, to catch another cold.'

'You ungrateful scoundrel,' cried I indignantly, although I had made up my mind to keep my temper; 'you dare to sneer at your master's illness, which he incurred in saving your own worthless life!'

'The Maharajah is very ill; he will die soon, and leave Master Marmy all alone, except for the little black girl. But she cannot become his wife, because he will have no money.'

'If you ever dare to speak of Miss Glendell in that manner again,' cried I, hoarse with passion, 'I will beat you to a mummy—not merely kick you, as I did before.' My cheeks were aflame; my whole frame tingled with rage, and yet I knew that I should spoil all if I hurried matters.

The Hindu had placed his hand in his girdle, doubtless feeling for some weapon, and the dusky glow upon his face shewed me that he felt the taunt.

'I repeat, Tannajee, I am not come here to talk of my own affairs at all, but rather of yours.'

'Of mine?' answered the Hindu contemptuously.

'Yes, of yours, and your master's. You have a common interest, you know.'

It was indiscreet of me to have hazarded this remark, and too late I perceived my folly.

The Hindu's breathing became oppressed; his fingers clutched at what his girdle still kept concealed, and his cheroot dropped from his other hand upon the floor. 'Uncle Theo, then, has told his nephew something,' said he slowly.

It seemed to me that this man would have stabbed me to the heart, had I answered: 'I know all.'—'Nay,' said I, as unconcernedly as I could, 'he has told me nothing except concerning your long service, the many years you have lived together as master and man; which should surely beget a mutual regard. Why, then, does it not so? Why are you callous to his sufferings? Why do you repay his kindness with insult?'

The Hindu's temporary excitement had quite subsided; he was smoking as before with his eyes half-closed, and a sottish sneer upon his lip.

'You are not moved by these reproaches, Sangaree Tannajee. You have neither sense of gratitude nor of duty; but there is one thing which I am determined to put a stop to—you shall not again walk in your sleep, my friend.'

For once, I do believe that the Hindu's air of not understanding what was said to him was not feigned—he even exhibited some faint trace of interest in my last observation.

'Sleep-walk?' said he. 'What does Master Marmy mean? Brandy not good for boy like him, only for men like Tannajee.'

'Master Marmy is sober enough, Sambo,' replied I very gravely; 'and this is what he means. You must not again come here, into this study, at night, to open your master's desk, and count his money, nor meddle with that secret drawer—Chorwallah!'

The Hindu had been gathering together his supple limbs while I was speaking, but at the word chorwallah (thief), which (as has been written) I had once overheard my uncle apply to him with particular emphasis, he was upon me in a moment with his naked knife; at the same instant, the shining barrel of my pistol met his wicked face, and he shrunk from it, an incarnation of baffled fury and cringing fear, back to the very wall.

'Drop that ugly knife, you scoundrel, drop it,' cried I, 'before I count three, or, by heavens, I pull this trigger. One—two!'

The weapon fell from his trembling hand, and clanged upon the boarded floor.

'Now, sit down where you were sitting, and listen to me, Tannajee.'

He cowered upon the carpet like a flogged hound, murmuring abjectly: 'Yes, yes; put away the pistol, Master Marmy.'

'No, not Master Marmy,' said I sternly; 'for the future, it's to be always Mr Marmaduke. You must henceforth mend your manners to me, as well as to your master. Let there be no more disrespect, no more rebellion, and as little drunkenness as you can help, you sot. A word from me, remember—I pointed to the violated desk—and I can send you to jail, where there is no opium, no strong drinks, and no cheroots. You have had your own way long enough, and have now come to the end of your tether. There is nothing left for you but either to behave yourself properly in my uncle's service, or to run away.'

I saw a momentary gleam of satisfaction cross his listening face.

'But you won't run away, you cur,' continued I with stern distinctness, 'for this most excellent reason, because, if I catch you at it, or overtake you after having done so, I will blow your brains out, as surely as your name is Sangaree Tannajee.'

This threat was perhaps not quite authorised in a legal point of view, but no decree of *Ne exeat Regno* could have had so much effect upon its object as had these pregnant words, assisted as they were by the application of the cold iron of the pistol-barrel to the ear-tip of the trembling Hindu. To add anything to that last touch would I felt be a bathos; so I rose without another word, and left Tannajee to his reflections.

## HORSESHOES.

THE Romans shod their horses, though not in the same way as we do. Their *pedillum* lapped over, and therefore occasioned a rattling sound. Winckelmann has published a drawing of a Roman gem, shewing one man holding up the foot of a horse, and another man shoeing it. An iron horseshoe is mentioned by Apian; but shoes (*carbatae*) made of raw hides were, as Aristotle and Pliny attest, put upon camels in the time of war and during long journeys. Nero is said, by Suetonius, to have shod his mules with silver. Pliny records of Poppæa, the empress of Nero, that she used gold for the same purpose. These shoes had probably the upper part only formed of the precious metals, or perhaps they were plated out of thin slips.

In the horseshoes found in the German barrows, says Fosbroke, the shoes project not downward, but upward. At Colney, in Norfolk, were found Roman urns, and a horseshoe of uncommon

form—round and broad in front, narrowing very much backward, and having its extreme ends almost brought close behind, and rather pointing inward, *with the nail-holes still perfect*. An early instance of nails in horseshoes is furnished by one of a horse buried with Childeric I., who died 481, which was fastened with nine nails (*Archæologia*, iii. 35). Du Cange and Carew mention the custom of shoeing only the fore-feet. La Broequirie describes the oriental horseshoes as being very light, rather lengthened towards the heel, and thinner there than at the toe. They were not turned up, and had but four nail-holes, two upon each side. The nails were square, with a thick and heavy head.

The present mode of shoeing horses was introduced into this country by the Normans, at the time of the Conquest. The Britons had been taught the use of them by the Romans, but their *pedolani* were probably considered too clumsy to be adopted by the Saxons. The Franks in the ninth century, and probably also the Normans, shod their horses in winter only.

It may be mentioned, *en passant*, that the male horse only was ridden by knights and people of any distinction in the middle ages; and that to ride a mare was always looked upon as a degradation. This was either a religious superstition, or an old Teutonic prejudice. In the thirteenth century, horses were obtained from Turkey and Greece, and at a later period from Barbary. The lord rode the *destrier*, or war-horse; the lady, the *palefroi*, or palfrey; the servant, the *rocin*; and the luggage was carried by a *sommier*, or sumpter. White horses were most prized, after them, dapple-gray, and bay or chestnut. It is curious to find that, in 1435, the queen of Navarre gave carrots to her horses. The ordinary price of horses in England, in the reign of Edward I., was from one to ten pounds. When St Louis returned to France from his captivity, the Abbot of Cluny presented to the king and queen each a horse, the value of which Joinville estimated at five hundred livres—equal to about four hundred pounds of our present English money. Feats of horsemanship were much practised; one of these was to jump into the saddle in full armour:

No foot Fitzjames in stirrup staid,  
No grasp upon the saddle laid,  
But wreathed his left hand in the mane,  
And lightly bounded from the plain.

Horses were frequently given as bribes. The widow of Herbert de Mesnil gave King John of England a palfrey to obtain the wardship of her children; and one Geoffrey Fitz-Richard gave the same monarch a palfrey for a concession in the forest of Beaulieu.

A large pitcher, ornamented with horseshoes, was found in a Norman pottery, discovered on the estate of Lord Scarsdale, near Derby. It is figured in *The Reliquary*, and is a very interesting example of the period. The decoration is the badge of the ancient lords of the soil on which the vessel was made, and it was probably designed for castle use. The badge is that of the family of Ferrars, Earls of Derby, Ferrars, and Nottingham, who held Duffield Castle from the time of Henry III., when the lands were confiscated.

The out-of-the-way little capital, Oakham, has a unique prerogative: it claims a horseshoe from every noble or royal personage who lodges within

its walls, or passes through its streets. In its ancient Norman hall may be seen these iron *souvenirs* of distinguished visits, some adorned with a coronet, and marked with the names of donors from Queen Elizabeth down to Princess Victoria. The castle was built by Wakelin de Ferraria, temp. William I. The Smiths' Company at Chester was in existence there long prior to 1498, in which year Prince Arthur, son and heir of King Henry VII., paid a visit to the quaint old city. The prince's horses required to be re-shod, and the services of Thomas Edyan, master-smith, and senior alderman of the Smiths' Company, were called into requisition on that duty. This work was completed so entirely to the prince's satisfaction, that he then and there presented to the said Edyan a silver badge, bearing a shield, on which were engraved a horseshoe, pincers, and hammer, surmounted by a *fleur-de-lis* crown, which he granted to be thenceforward worn by his said master-smith, Thomas Edyan, and his successors, the senior aldermen of the Smiths' Company, for ever. A grave-stone, excavated at the western end of St John's Church, Chester, contained a *fleur-de-lis* cross, on either side of which were sculptured a horseshoe and a smith's hammer and pincers—clearly commemorative of a defunct member of the Smiths' Company at Chester, and possibly of that very Edyan whose workmanship had so won the prince's favour.

In Lord Herbert's *Life of Henry VIII.*, printed in Kennet's *History of England* (ii. 17), we read that Henry 'having feasted the ladies royally for divers days, did depart from Tournay to Lisle (October 13, 1513), whither he was invited by the Lady Margaret, who caused there a joust to be held in an extraordinary manner; the place being a large room, raised high from the ground by many steps, and paved with black square stones like marble; while the horses, to prevent slipping, were shod with felt or flocks (the Latin words are *feltro sive tomento*), after which the ladies danced all night.' Shoeing with felt is mentioned by Shakespeare (*King Lear*).

Aubrey, in his *Miscellanies*, says: 'Under the porch of Stanfield Church, in Suffolk, I saw a tile with a horseshoe upon it, placed there to hinder the power of witches, though one would imagine that the holy water would have been sufficient.' The charm of the horseshoe lies in its being forked, and presenting two points. Thus, Herrick, in his *Hesperides*, says:

Hang up hooks and sheers, to scare  
Hence the hag that rides the mare,  
Till they be all over wet  
With the mire and with the sweat;  
This observed, the manes shall be  
Of your horses all knot-free.

Even the two forefingers held out apart, are thought to avert the evil eye, or prevent the machinations of the lord and master of the nether world.

The pentacle, or seal of Solomon, is supposed to possess great power, as being composed of two triangles presenting six forked ends, and therefore called pentacle erroneously.

Mr Timbs states, that when Monmouth Street was a fashionable locality of London, it was noted for its number of horseshoes nailed over the doorways or on the sill. In 1813, Sir Henry Ellis counted here seventeen; in 1841, there were six;

but in 1852, there were eleven; now there are fewer. Nelson had great faith in the horseshoe, and one was nailed to the mast of the ship *Victory*. 'Lucky Dr James' attributed the success of his fever-powder to his finding a horseshoe, which he adopted as the crest upon his carriage. A horseshoe is very conspicuous at the gate of Meux's Brewery, at the corner of Tottenham Court Road, and on the trappings of the horses of the establishment. The lucky belief in the horseshoe may have led to its having been adopted as the ornamental portion of a scarf-pin.

Messrs Larwood and Hotten, in their *History of Signboards*, state that the horseshoe by itself is comparatively a rare sign. The three horseshoes, however, are not uncommon; and the single shoe may be met with in many combinations, arising from the old belief in its lucky influences. The sun and horseshoe is still a publichouse sign in Great Titchfield Street; and the magpie and horseshoe may be seen carved in wood in Fetter Lane—the magpie perched within the horseshoe, and a bunch of grapes being suspended from it.

### DAISY'S CHOICE.

#### IN FIVE CHAPTERS.—CHAPTER V.

'DOCTOR, when may I go out into my garden again?' She was lying on a couch in the drawing-room, and he was sitting beside her. She was looking out of the window, through which, as she lay, she could see the tops of a couple of poplar-trees, rocking gently to and fro in the March wind. If she had looked at the doctor's face, she would have seen a shadow flit across it.

'I think it will be soon now, Daisy,' he said.

'How soon?'

'I can hardly tell you, exactly. You have been very patient; I know you must be weary of being a prisoner.'

'No; I am not so tired of that. I just took a sudden longing to go out and see the flowers in my garden. I know the crocuses must be all standing up in their stiff rows: they always used to remind me of soldiers, in yellow, and purple, and white uniforms. And my dear little hypticas, they will be nearly over by this time.'

'How very stupid I have been,' said the doctor suddenly rising, and going out of the room. He went down-stairs, and out into the garden, where he pulled a great bunch of crocuses and hypticas, and one or two late little snowdrops, that were nodding their delicate heads in a shady corner, under a rhododendron bush. His face wore a curious mixture of expressions as he pulled those flowers; there were both pain and pleasure in it, and above all, a sort of wistful tenderness, as if the flowers had been a bit of Daisy herself. He brought them to her, and laid their cool faces to her cheek.

'Thank you, oh, thank you!' she whispered, and her eyes filled with tears.

He brought her a vase to put them in, and left her arranging them; and every morning after that, he brought a bunch of flowers with him: she knew by them how the season was gliding away.

After the crocuses came anemones and wall-flowers; and then, by and by, little fragrant rosebuds. One day, when he gave her a bunch of those, she said: 'I thought that I should have been able to gather those for myself by this time.'

He sighed a little, as he sat down beside her couch. 'You must be patient for only a little while longer,' he said. 'I must let you go soon.'

'Let me go!' she repeated wonderingly. 'You speak as if you were almost sorry about my being nearly well again.'

'I am very glad and thankful that you are so nearly well, Daisy,' he said.

She turned her head, and looked up in his face. 'You may be thankful, but you certainly don't look glad.'

'Do I not? But I *am* glad, or at least I try to be. Only, people are very selfish in this world, Daisy. When you were in pain, my child,' he went on in a low voice, and holding his face so that she could not see it, 'I suffered with you. I would have given my life to save you from suffering. But now that the pain is over, I only feel that you are mine as long as you lie here, and I am loath to let you go. But for all that, you know I won't keep you lying here an hour longer than I can help.'

'I know that,' she answered, smiling at him. He rose to go away. 'Doctor,' continued she, playing with her rosebuds, and not looking at him, 'I want very much to ask you a question. Will you answer me truly?'

'If I can.'

'When I rise from this sofa, shall I be quite well and strong?'

'I hope so; I truly hope so, Daisy.'

'Shall I not be a—*a* cripple? a helpless burden to other people?'

'I am almost sure you will not be that. At one time, I had fears for you; now, I have none.'

'Thank you,' she said, looking up at him; and her flushed, smiling face was very lovely. 'I believe you have really told me what you think. I know you are very true—you would not try to deceive me.'

'I think I know why you have asked that,' he said, looking at her a little wistfully. 'It is as I knew it would be; when you rise from that sofa, you will go away from us all. But I would not keep you here, if I could; I shall try to be glad to let you free from me and my care, Daisy.'

She gave him an odd little glance, and he thought she was going to tell him something, but she only said: 'I shall expect you in the evening; try to come early,' and he went away. She lay looking out of the window, at the lazily playing leaves of the poplar-trees against the blue summer sky, with that curious smile on her face. The smile staid even though her eyes became wet, and she had to wipe away a good many tears that rolled down her cheeks.

Curiously enough, almost the first person whom the doctor met after leaving Mr Barton's house was Vivian.

'When did you come?' he asked, shaking hands with him.

'Only this morning.—How is Daisy?'

'Nearly well. She will be quite well soon, I hope.'

'Really quite well?' asked Vivian sharply. 'Is there no risk of lameness, or anything of that sort?'

The doctor looked at him with something very like contempt. 'You need not be afraid; I think there is no such risk.'

'When may I see her?'

He considered for a minute. 'I think there is nothing to hinder you from seeing her whenever you like.'

'Now? To-day?'

'Yes, if you wish it.' Vivian did not know what it cost the doctor to say these words. 'Send up your card, and say I said you might see her, and they will let you in.'

He walked away, and Vivian went straight to Mr Barton's.

Daisy was lying just as the doctor had left her, when his card was brought. She flushed a little when she saw it. 'Did he say that he had seen the doctor?'

'Yes, Miss Daisy,' answered the servant; 'and the doctor said that you might see Mr Vivian.'

'Shew him up then,' and the next minute he was in the room.

His first impression was that she was lovelier than ever. She was dressed in a pale-blue wrapper, and her hair was lying in tumbled curls on her pillow. He looked anxiously at her face; there was no ugly fire-scar, such as he had dreaded; her beauty was etherealised by illness, her skin looked more transparent, her eyes larger and more brilliant. Her hands were folded on her breast, and she held the bunch of rosebuds which the doctor had given her. Vivian was too much of a poet not to see the exquisite beauty of the picture before him; yet even in that first minute he wished he had waited a little longer, that he might have seen if she could walk like other people, and he hastily resolved to commit himself to nothing. Yet the manner with which he went forward and took her hand was perfect, and his splendid dark eyes were full of tears.

'Dear Daisy,' he said almost in a whisper, as he sat down on the doctor's chair, 'I have been longing so to see you again.'

There was nothing to be said to this, so she only smiled, at the same time gently drawing away her hand, which he had continued to hold.

'I needn't tell you,' he went on, 'how I have suffered for you all this time. It has been a time of terrible anxiety to me.' He had managed to enjoy a tolerable share of London gaiety, and those who saw him there had certainly not guessed that he was suffering any very acute pangs.

'I am sure you were very sorry,' said Daisy. 'But I am nearly well now. Frank says that I shall be quite well soon.'

Now, Frank was the doctor's name, but Daisy had never before in her life called him by it, either to himself or to any one else. Why she did so now was best known to herself.

'Frank!' repeated Mr Vivian, looking mystified. 'Oh, you mean the doctor. Yes; he told me so.' And then there was rather an awkward pause, during which he became dimly conscious that

Daisy was not exactly the Daisy he had known five months ago, and he resolved still more firmly not to say anything foolish.

'You must have had a tiresome time of it, lying here,' he said in his most sympathising tone.

She laughed brightly. 'O no; not after the actual pain went away. You know I have seen so much more of Frank than I do when I am well.' She said it more naturally this time. 'Usually, he is so busy that he can hardly spare time to be much with me; but since I have been ill, I really think he must have neglected his other patients to attend to me.'

Vivian had not come there to hear the doctor's praises, and he felt himself change colour, which annoyed him.

'I am sure he is an excellent doctor,' he said, with some slight shade of ill temper visible.

'Yes, he is,' answered Daisy gravely. 'No one can ever know what he has been to me at this time. I sometimes think that I must have died, had it not been for him.'

Then there was another silence, still more awkward on Vivian's part than the last, and he had always so hated awkwardness. He tried to get up a conversation, such as she had once delighted in, but somehow he failed to interest her. He felt uncomfortable, and wished ten times in the course of half an hour that he was back in London, or anywhere else except in Daisy's drawing-room. He was intensely relieved when it occurred to him to say that as she was not strong, he would not tire her by staying too long. She bade him good-bye very calmly, and he left her, the sense of failure strong upon him; and failure to such men as Mr Vivian is very painful.

The doctor had promised to be with her early, but it was past his usual time. When she heard his step on the stairs, she knew from the sound of it, as he slowly mounted, that he was tired, and she quite expected to see the worn, wearied look in his face. He looked round the room when he came in, evidently expecting to see some one else.

'I thought,' he said hesitating—'I did not think you would be alone.'

She smiled, and held out her hand to him. 'I have been alone nearly all day. Mr Vivian only staid a very little while.'

'If I had known that,' he said in a low voice, 'I would have come sooner. I thought that he would be here, and that you would not want me.'

She lay looking at him, silently; her eyes were moist, but the curiously sweet smile played round her mouth.

'Frank,' she said suddenly.

He started violently. She had never called him so before.

'Frank,' she repeated, 'I want to make a confession to you. May I?'

He looked at her. The sun was setting just opposite the window, and the rosy light was streaming in on her wavy hair, on her little folded hands, on her sweet calm face. It was very calm, and her clear eyes were raised to his. He was much agitated.

'I think,' he said, 'that I know what you are going to say. I have been expecting it. Don't say anything that pains you, Daisy. I can understand without your telling me.'

'I don't think you can,' she said smiling; 'and I don't think that you know in the least what I am going to say.'

She was very calm, he thought. He had expected a confession made with blushes and tears, not this smiling radiance.

'Once upon a time,' she went on, without moving her eyes from his troubled face—'it seems a long time ago—when I was very young and thoughtless, a good and noble man did me the great honour of asking me to be his wife. I didn't know what an honour it was then, but I do now.'

He raised his hand, as if to stop her; but she went on. 'I promised, not in the least knowing what I did—not knowing what a solemn thing it was to resolve to give my whole life to him; for I know now that I did not love him.'

She paused, trembling a little now.

'Dear Daisy,' he said, 'you need not go on. I know that; I know how selfish I was. Do not pain yourself needlessly, my child. I will make all the reparation in my power for that selfish act.'

'I know; but I should like to tell you all about it, if you will let me. You must have seen that when Mr Vivian came, I was greatly fascinated by him. He was different from any one I had ever known, and it seemed to me then that in a great many things he was nobler and higher. And I began to compare him with—the other, and at first I was foolish enough to believe that the advantage was on his side. He was so clever, he seemed, as I have said, to have something very noble about him. But, after a while, I began to find out that though he was a clever man, he was not a good man. I don't know how I found it out. I felt instinctively that he was not quite true, and that he loved himself better than any one else in the world. But I did not know till just the evening of my accident what it was to love any one. Then I found out; and all this time, while I have lain so much alone here, I have been thinking how foolish and wicked I was. But I didn't know—then. Frank, will you forgive me?'

She had hidden her face on his arm, and he bent his face close to her hair.

'What do you mean, Daisy?' he whispered. 'I don't understand.'

She put both her arms round his neck, and laid her cheek to his. 'I mean that if you will forgive me, and take me back, and let me be your wife, it will make me very happy, for I love you very dearly.'

He clasped her close to his breast. 'Oh, my love, my love!'

'I would have told you all this long ago,' she whispered, after a happy silence, 'but I feared that I was going to be a cripple, and I couldn't speak till I knew.'

'My darling! As if that would have made any difference to me,' he said with a joyous laugh.

Daisy had been six months married, when one day, as she was working in her garden, she heard her husband call to her. He had made the window of the surgery into a glass door, that she might get to her flowers without going out to the street, and he was sitting inside reading the papers.

'Look here,' he said, pointing to a paragraph, and giving her the paper. 'Our old friend has married an heiress.'

She read it, smiling. 'Frank,' she said, looking in at him through the half-open door, 'supposing I had married Vivian, would you have forgotten me so soon?'

'If you had married him, I would have lived single all my life, for your sweet sake,' he said fondly.

And I really believe that he spoke the truth.

## ACROSS THE WALNUTS AND THE WINE.

In after-dinner talk  
Across the walnuts and the wine.—Tennyson.

EVEN at Housewife's pleasant table, the elections and the change of ministry have of late infected the conversation. The few remarks connected with this subject that are at all adapted for our uncontroversial columns were made by Mr Bitter Aloes, with whom all governments are bad, although some of them may be worse than others. He was speaking with his accustomed pungency of a very great statesman indeed, whose aspirations, as we contended, were by no means so Democratic as they are supposed to be.

'There is no one,' said he, 'in the present Cabinet who is so tenderly attached to that hereditary aristocracy who has done so much for all of us. To see him shake hands with a duke, sir, is a most affecting incident. He does not know how to let go of him. *It is like Jacob wrestling with the angel.*'

'And, by-the-bye,' cut in Funnidog swiftly, 'have you heard Lord Derby's last riddle? It is notorious, now that he has given up statesmanship, that he passes his time in constructing conundrums, which are the only means by which he can assist his party: everybody knows that.'

'I don't believe a word of it,' exclaimed Colonel Thunderbomb excitedly.

'Let us, however, hear the riddle,' insisted Housewife, whose principles are 'progressive.'

'Well, it's a Charade,' said Funnidog in a tone of deprecation.

'Off, off!' cried the company with one voice: 'no charades!'

'He will be asking a double acrostic next, you mark my words,' said Aloes darkly; 'and I would as soon have a double-barrelled gun pointed at me.'

'Upon my word of honour,' pleaded Funnidog, 'it is as simple as snapdragon. Even Thunderbomb will guess it; he will indeed.'

'I'll bet he don't,' growled the colonel confidently.

'"I should be my First," said my Lord Derby, "if I could throw my Second at my Whole."—Now, what's that?'

'I see,' cried Housewife, like a small boy in a rival-voice class.

'Of course you do; everybody sees,' muttered Aloes; 'it's mere child's play.'

'Come, Thunderbomb, I promised you should guess it,' urged Funnidog. 'It's the name of a great statesman—a premier.'

'Disraeli,' ejaculated the colonel.

Roars of laughter.

'Well, no, it's not *exactly* Disraeli,' explained Funnidog. 'It's Gladstone.'

From this (not unnaturally) the conversation turned upon the perception of the Humorous, the faculty of understanding jokes. Housewife instanced Samuel Rogers's story of the posts in the Green Park. One of those unfortunate persons who talk for the sake of talking, asked Sidney Smith why the posts at the Park entrances had been put more closely together, as had lately happened.

'Ah!' replied the Wit with gravity, 'you have no idea what fat persons used to get into that Park.'

Rogers considered the nature of the reception of this reply as the best test he was acquainted with of the humorous faculty. If a man saw no fun in that, it was his opinion that he would see fun in nothing.

Mr Macpherson protested, on the part of his fellow-countrymen, that although in England such obtuseness might exist, no human being north of the Tweed could have taken the reply as serious.

'And yet on the Mound, at Edinburgh,' observed Mr Bitter Aloes, 'I solemnly declare that I have seen a beggar stand for weeks, with this inscription written upon his breast: "Blind from my birth. I have seen better days."'

'And what for no?' inquired Mr Macpherson gravely.

The laughter, this time, was not only general; it even included the colonel. 'Why, don't you understand,' explained he, 'that the beggar shewed he had no sense of fun, since he had written on him that he had "seen better days," when he had been blind from his birth!'

'I take exception to the syllogism a'thegither, colonel,' replied the imperturbable Caledonian. 'The term "seen" is clearly employed in a metaphorical sense, and has nae connection with phaeical vision; and secondly, I deny that the man shewed himself deficient in the humorous faculty, inasmuch as bein' blind he couldna see anything amiss in his superscription. If there be any contradiction in terms, it must lie at the door o' someither body. Besides,' continued Mr Macpherson, taking a lucifer-match box from his pocket, 'you needna gang to the Mound, at Edinburgh, for examples o' blindness, whether phaeical or mental, when Messrs Bryant and May here—which, I believe, is no a Scotch Firm—can find nae mair apposite trade-mark for their lucifers, that are sae grand a *Security against Fire*, than an Ark, which is more commonly associated wi' security against an antagonist element. Nay, in this very day's paper, I read, among the literary advertisements, the following: *New Magazine: Under the Crown; price one shilling*. Noo, I reckon it might hae struck the enterprising proprietors, or, at all events, the dootless intelligent editor, that the words *Under the Crown* are quite superfluous, if the cost o' the periodical is stated to be a shilling.'

'You have given the Southron as good as he gave,' observed Housewife; 'but, talking of new magazines—which seem to be as plentiful as blackberries, and like them (in many cases), not to be devoured if you can get anything else—there is one I see called *The Idealist*, which invites all our youthful poets to contribute to its columns. Can its editor be aware of what a comprehensive invitation he has issued, or of the nature of the guests he has thus welcomed? I should like to see his photograph "before and after" the first week of his editorial labours; his experience of the *Ideal*—and the Real.'

'Just so,' interposed Funnidog, with his usual precipitation: 'that reminds me of a story about false teeth. I have a female cousin—a worthy soul, and I daresay a blessing to her immediate belongings, but whose hospitality to strangers (and distant relatives) is not prodigal. In fact, she is one who looks twice at a shilling before she parts with it, and does not always part with it even then.

But she was inclined to be liberal and even lavish in one special direction. I don't know what wore out her teeth—it was certainly not over-feeding—but they were not good, and her secret ambition for years had been to procure a set of false ones, such as should defy the shocks of Time, and be the admiration of all beholders. At last, she accumulated the sum required—it was said to have been saved by curtailing the household expenses—and invested it in ivory. She paid a hundred guineas for the set, and was naturally very proud of them. She put them on for the first time last New-year's Day, when about to visit some friends at Margate. Her husband, whose constitution had perhaps been a little deteriorated by her domestic economy, was for journeying thither in the usual manner by railway; but the good lady maintained that it would be a sin and a shame not to take advantage of the unusually mild season, and go down cheap by the steamer. Now, mark the sequel, which bears a noble moral for those who would be economical at the expense of others: the winds blew, and the waves arose, and the usual consequences took place among the passengers. The ship had scarcely reached the mouth of the Thames before those costly ivories escaped from that of this good lady. It would have been almost as cheap to her, and much more pleasant, to have taken a special train.'

'The views, however,' observed Housewife, 'which folks entertain respecting economy are often extremely curious. A girl who is pretty, good-tempered, sensible, and altogether charming, is considered a bad match; while some wholly undesirable young woman, who happens to have a few thousand pounds, is reckoned a good one; notwithstanding that the former may understand how to keep house and manage affairs, which is a fortune in itself. I knew a case in which a most eligible damsel was pronounced by his friends as unfit to marry a certain young divine, because, forsooth, she was "without a penny." He was weak-minded enough, after having proposed to her in form, to give way to their remonstrances, and she was strong-minded enough to bring an action against him for "breach of promise." The damages were laid at five thousand pounds, and she gained them (I am happy to say) in full. The impressionable defendant, who had reaped nothing but ridicule from his former advisers throughout this trying ordeal—which included a protracted cross-examination by Serjeant Valentine (always retained in these delicate cases)—was now brought to reason. He addressed the young lady in a strain even more fervent than before: "I have behaved infamously," he owned, "but if you will only forgive and forget, we may be happy yet [with other verses]. The only objection which my friends had to you is now removed. They can no longer say that you are without a penny, since you have five thousand pounds of your very own." And the happy pair were married accordingly.'

'Talking of marriage,' remarked Funnidog, 'reminds one of the Hatch, Match, and Dispatch (as folks used to call the Birth, Marriage, and Death department of the *Times*), in connection with which a curious announcement has appeared in the Irish papers. Some noble Lord, it seems, presented a pair of Ostriches to certain zoological gardens, with the understanding, that if anything happened in the feathered family, he was to be informed of it at once. He accordingly received this notice from the committee of management:

"My Lord, we have the pleasure to inform you that the female ostrich has laid an egg. She does not, however, concern herself further with the cares of maternity, and we hardly know what is to be done. For the present, therefore, we have engaged the greatest goose we could procure to sit on the egg, until your Lordship comes yourself."

# THE MONTH: SCIENCE AND ARTS.

THE Hyde Park and City Railway, another project of underground engineering, is now brought forward, with promise of a tunnel from the Marble Arch to the Post-office, under the present line of roadway. By this selection of the course of a public thoroughfare, where land will not have to be bought, the cost will be £1,400,000, instead of £4,500,000. Mr Hawkshaw, engineer of the proposed line, states that it shall be constructed without any interruption of the street-traffic, between the hours of six in the morning and ten at night. Any diggings made during the night will be covered in, and the paving replaced before 6 A.M. There will be, in all, nine stations; the trains are to be drawn by wire-ropes from fixed engines at each end, so that the air of the tunnel will not be poisoned by the smoke and vapours of locomotives; and as there can be no collisions, trains will start every two minutes. When the Blackwall Railway was first opened, and for some years afterwards, the carriages were drawn by wire-ropes; and in the opinion of competent engineers, the substitution of locomotives for ropes was a mistake, whether regarded from the scientific or the economical point of view, as will perhaps be demonstrated when the new line here noticed begins to work.

In England, Scotland, and Ireland, there are 3381 telegraph stations from which messages are sent, of which number 738 are exclusively for railway service. The total length of wire employed by all these stations—including the quantity twisted in 4695 miles of under-sea cable—is 103,783 miles. These figures enable one to form a notion of the magnitude of the telegraphic operations now carried on, and of the enormous task which government will have to undertake when they carry out their scheme of buying out all the companies, and taking all the telegraphs under their own control. All this has grown up within the past thirty years, and called into exercise a prodigious amount of scientific and mechanical ingenuity. The Royal Society did well at their last anniversary to present their most honourable medal to Sir Charles Wheatstone, for to the instruments invented by him the present facility of telegraphic communication is mainly due.

The Turkish government, which it is the fashion to describe as behind the age, have ordered four life-boats from a builder in Limehouse, for use, we may imagine, on the stormy coasts of the Black Sea. On the coasts of Great Britain and Ireland, there are 189 life-boat stations; and it appears that the number of lives saved in eleven months of 1868 was 697: a fact worth recording.

Dr Tyndall has made some very surprising experiments by passing vapours of different chemical

substances into an exhausted glass tube, and then sending through them a beam of electric light. The vapour is at first invisible, but after the light has shone through it for a few seconds, it forms clouds of a blue, green, red, or mauve colour, which break up into the most fantastic and beautiful forms, endowed with a rotary motion, which adds greatly to their effect on the eye. In some instances, the cloud takes the shape of funnels overlapping each other, and, curiously enough, the inner ones can be seen through the outer ones. The most surprising of all is the vapour of hydriodic acid. The cloud is seen cone-shaped, supporting vases of exquisite form, and over the edges of these vases fall faint clouds, resembling spectral sheets of liquid. Afterwards, a change takes place—roses, tulips, and sunflowers appear; then come a series of beautifully shaped bottles, one within the other, and on one occasion there was seen the shape of a fish with eyes, gills, and feelers. What, it may be asked, is the use of all this fantastic beauty? The answer is, that Dr Tyndall finds therein illustrations of chemical decomposition, examples of molecular physics, and explanations of the formation of cloud and the blue colour of the sky, whereof we shall hear more by and by, and by which science will be enriched.

Last summer, at the instance of the Royal Society, the Admiralty lent a steamer to Dr Carpenter and Dr Wyville Thomson, for a dredging cruise in the North Atlantic, to the westward of the Farøe Islands. The special object in view was to ascertain whether living animals would be found at great depths, and in what geological conditions. The late Professor Edward Forbes propounded the theory that life ceased at 300 fathoms, and that the shells and animals found at that depth would be quite colourless, through want of light. But the cruise above mentioned, as well as other dredging operations, establish the fact, that brightly coloured shells, and animals with colour in their bodies, are met with at the greatest depths to which the dredge has yet descended—from 500 to 600 fathoms. Moreover, the abundance of minute animal life on the deep sea-bottom is amazing; and from what Dr Carpenter stated at a recent meeting of the Royal Society, naturalists and microscopists may expect large contributions of interesting objects to study for years to come. Another fact important to geologists is, that their cretaceous period is no longer to be regarded as belonging exclusively to the past, for the formation of chalk at the bottom of the sea in the North Atlantic is going on at the present time, and therein are found living animals identical with some hitherto known only as fossils of the chalk.

Great things, as readers know, are effected by water-power, and now we hear that ships are to be steered by pressure of the water in which they float. There will be no wheel, no tiller—such as is now in use—and no tiller-ropes, but an apparatus, simple, yet so powerful, that therewith a boy might steer the *Great Eastern*. In the absence of full descriptive details, we can only say that the invention comprises a hydraulic chamber fixed to the keel, in which the pressure is exerted, and that from this an iron rod passes to the rudder-head. We shall, perhaps, not have to wait long for further information, for Captain Ingfield, F.R.S., the inventor, has been appointed to one of the largest ships in the royal navy, in order to make a thorough trial of his invention.

An improved method of shoeing horses has been introduced from America, where seven years' experience have fully proved its merits, not the least of which is that it preserves horses from some of the maladies to which they are liable when shod in the ordinary way. The shoe at present in use is too heavy, too cumbersome, compels the horse to keep his leg in a false position, and impairs his usefulness long before the time of natural decay. The weight of a set of the new shoes is five pounds less than that of the shoes worn by omnibus horses: each shoe is made to fit the hoof exactly, and is not allowed to project beyond the heel: the nail-holes are pierced at such an angle as insures the nails entering the hoof in the safe direction for avoiding injury to the foot, and the shoe is always nailed on cold. The frog of the foot, which is now always cut away by farriers, is left to grow, and it is of important use to the horse in securing foothold. The shoe for common use has a toe-calk, and one on each side, but these do not prevent the horse bringing his foot to the ground in a natural position. For frosty weather, a different kind of shoe is used, but with neither of them can there be accumulation of snow or earth under the sole. The inventor and patentee of this new shoe is Mr Goodenough, who was formerly associated with Mr Rarey. It has been tried on a number of horses belonging to the London General Omnibus Company, and with satisfactory results.

From the province of Volterra, in Tuscany, there comes good news for agriculturists, and for all who use mineral fertilisers. There are *lagoni*, or lakes, in that province, the waters of which for some years past have been made to give up the boric acid which they contain in considerable quantities. Professor G. Ville, of the Jardin des Plantes, Paris, has recently demonstrated that, in addition to boric acid, the waters, and the vapours rising from crevices in the earth, contain a large amount of sulphate of ammonia. This mineral is so much in demand for agricultural purposes, that we trust measures will be taken to extract a constant supply, and export it to all parts of Europe.

Sheep multiply so prodigiously in Australia, that the boiling down of the animals merely for the extraction of the tallow, has grown into a business of huge proportions. Four hundred sheep are cut to pieces, and thrown into a big boiler, steam from another boiler is turned on, and soon the carcasses are reduced to a pulp; the tallow rises to the top, and is drawn off through large taps into barrels for export. The gravy and other juices, the remains of the meat, and the bones, which are so softened as to crumble easily in the hands, are given to pigs. Such soup as that would be gladly eaten by hundreds of poor people in England. The quantity must be great, for four thousand sheep are boiled down in a day.

Tallow-chandlers complain that they cannot get enough of good beef-tallow for their purposes. The reason is, that tricky traders buy beef-tallow, and send it to Belgium, whence it is exported as Ostende butter. In the treatment of the tallow to fit it for the market, a kind of flour is mixed with it, and this flour takes up thirty per cent. of water. So, eaters of Ostende butter will do well to remember that in every one hundred pounds they buy, there are thirty pounds of water, to say nothing of the flour. To pay the price of good butter for water, tallow, and flour, is a grievance not easy to put up with.

### BLUE AND WHITE.

'Of all the colours, sweet sir, what may your favourite be?'

And the lad I had nursed back to life looked up, and made answer to me:

'Two colours I choose—blue and white.' Then up from my throat did there spread,

Yea, to my very temples, a dye of the happy red;

For a maiden's face will flush at the lightest thing evermore;

And blue was the ribbon that bound my hair, and white was the gown that I wore.

'May I tell you all, lady sweet?' 'Ay, sir, an' it please you so.'

All alone with each other we sat in the firelight's glow:

He, the lad whom our men had found nigh dead close by, And the mother that bare him could never have nursed him more gently than I.

'Sister—nay, pardon my freedom—but oh, you have been so good,

I well could wish that I owed you the duty of brotherhood;

Crown your sweet favours with this, the greatest of all, and be

As tender to her I love, as you have been tender to me.'

Then over every sense there swept down a terrible, dim Dusk of oblivion, as there I sat, and listened to him.

Silence a moment, and then, by the helping of God His grace,

I answered: 'Yea, brother, I will,' with a very smile on my face.

'Now, God bless you, sister. Listen. A year ago

She gave herself to me for ever and ever, and so,

One sweet autumn eve, in the time of the falling of dew, I gemmed her little white hand with a circlet of sapphires blue.

'She, my own lady, taketh ever the most delight

In the calm virginal colours—the delicate blue and white; And, sister, mine eyes were soothed with a sense of love—

some repose

When I saw you this evening wear the hues that my darling chose.'

Oh! but the bonnie blue ribbon pressed on my head all too tight;

Oh! but my heart beat wild beneath its virginal white;

Oh! but the hours were long as I knelt in the dark alone, Moaning: 'My Father, teach me to say but "Thy will be done."'

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This day,

THE LAST EARL OF DERWENTWATER.

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